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First records of *Halpe aucma* Swinhoe, 1893 (Lepidoptera: Hesperiiidae) from Nepal

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ABSTRACT

Halpe aucma Swinhoe, 1893, also commonly known as Gold-spotted Ace, is reported for the first time from Nepal. Four individuals of the species were seen during an opportunistic survey conducted in August-October, 2021. Three records are from Dhankuta district in the east Nepal between 603 and 715 masl while one is from Lalitpur, Nepal at 1500 masl. The identification was confirmed by the study of the male genitalia. This study confirms the presence of this taxon toward the north of the Brahmaputra River as well, up to as far as central Nepal.

Keywords: *Halpe aucma*, Nepal, new record, gold-spotted ace

1. INTRODUCTION

Nepal lies between China in the north and India in the other three directions. Thus, there is always a good chance to find species of the neighboring countries in Nepal. Smith (2010) listed 660 butterfly species for Nepal. However, with the recent records by several other researchers, the count has gone up to 679 (P. van der Poel, personal comm., May 15, 2021).

Halpe aucma is a Hesperiid butterfly, commonly called the Gold-spotted Ace. Evans treated this taxon as a subspecies of *H. homolea* Hewitson, 1868. In 1998, Huang raised it to the species level, based on it being sympatric with *H. homolea* and its distinct male genitalia (Huang, 1998). GBIF (www.gbif.org) and Funet (https://ftp.funet.fi/index/Tree_of_life/insecta/lepidoptera/) too list it as an accepted species. However, some publications, such as Van Gasse (2018) and Varshney and Smetacek (2015) still choose to consider it a *H. homolea* subspecies, the former with special notes. So far, this species has, on the Indian subcontinent, been reported from Meghalaya, Manipur and Nagaland in NE India (Varshney and Smetacek, 2015) while Van Gasse (2018) specifies this to be south of the Brahmaputra and also reports it from SE Arunachal Pradesh and NE Bangladesh.

2. MATERIALS AND METHODS

The species was recorded during an opportunistic survey conducted by the first author between August and October, 2021 in Dhankuta and Lalitpur districts of Nepal. Canon 7D markII was used to photograph the sightings. Two collected male individuals, one from Dhankuta and one from Lalitpur,

were taken for dissection to the entomology lab of Nepal Agricultural Research Council, Khumaltar, where the second author works. Olympus Stereo-microscope Model SZ2-ILST was used to perform the dissection, and photographs were taken with an iPhone 6s smartphone (Fig. 5-6). The contrast of the genitalia images was corrected using MS Word 2019.

2.1. Identification

Primary identification was based on male genitalia, while taking references from Cao et al. 2019 and Huang, 1998. The other individuals were identified based on their morphological characteristics, visible in their photographs. According to Evans (1949), *Halpe aucma* is morphologically most similar to *H. filda* Evans, 1949 and *H. molta* Evans, 1949. However *H. filda* usually lacks the forewing (FW) cellspot, unlike *H. molta* and *H. aucma*. Similarly, *H. molta* has FW spots 2 and 3 more overlapping than those in *H. aucma* (Huang, 1998). This latter character however isn't shown true by one of our dissected individuals of *H. aucma* which clearly has spots 2 and 3 more overlapping. But the other three individuals that we recorded have little to no overlap between these spots as in a typical *H. aucma*. So, it was for the best that we dissected a non-typical male, which also sheds light on the existence of variations within this taxon.

3. RESULTS/OBSERVATIONS

The first individual (Fig. 1A-B) was seen on 11th of Aug, 2021 at Bhedetar, Dhankuta at 715 masl mud puddling on a shady path. The second one (Fig. 2A-B) was seen on the next day on 12th Aug, nearby, at a riverside at 634 masl, sipping from the remains of a dead crab and often coming back. This particular individual was caught for confirmation.



Fig. 1A: Individual recorded on 11th Aug 2021



Fig. 1B: Individual of 11th Aug 2021, underside



Fig. 2A: Individual of 12th Aug 2021, upperside (Dissected male)



Fig. 2B: Individual of 12th Aug 2021, underside



Fig. 3A: Individual of 20th Aug 2021, underside



Fig. 3B: Individual of 20th Aug 2021, upperside



Fig. 4A: Individual of 5th Oct 2021, underside (Dissected male)



Fig. 4B: Individual of 5th Oct 2021, upperside

On 20th Aug, one more individual was seen at Bhedetar, Dhankuta at 603 masl not far from the location of the second observation (Fig. 3A-B). This individual was rather worn out. Another possible observation was at somewhat higher elevation at Paripatle, Dhankuta. Due to the poor quality of the picture this one could not be identified with certainty.

Lastly, another individual was seen in central Nepal in Lalitpur district near Godavari on 5th Oct, 2021 at 1500 masl (Fig. 4A-B). This male individual too was dissected for confirmation.

Thus, in total, at least four individuals were recorded out of which two were confirmed via dissection and the other two by morphology.



Fig. 5A: Genitalia capsule of male *H. aucma* with valvae removed (Fig 2 individual)



Fig. 5B: Valva of male *H. aucma* (Fig 2 individual)



Fig. 6A: Genitalia capsule of male *H. aucma* with valvae removed (Fig 4 individual)



Fig. 6B: Valva capsule of male *H. aucma* (Fig 4 individual)



Fig 7: Study Area

4. DISCUSSIONS

The closest known records of *H. aucma* are from Meghalaya, India which is some 500km SE of Lalitpur, our farthest study area in west (Source: Google Maps aerial distance measurement). The presence of this species so far away from its known distribution area was definitely not expected. This anomaly could have several possible explanations:

- H. aucma* is actually present in localities between Meghalaya and Central Nepal, but no one has recorded them yet, which may be due to the species being seldom seen and/or very local.
- Some lost/accidentally introduced individuals of *H. aucma* eventually established themselves in Nepal.
- H. aucma* used to be widespread although not common. In more recent times it has disappeared from many of these areas and outside its main distribution area, it has become restricted to small isolated areas.

Nevertheless, this finding has extended the known distribution area some 500km to the NW in Central Nepal, while this is also the first known record of the species north of the Brahmaputra River. Moreover, it points at the possibility of it being present in areas in between, such as Assam, West Bengal and Sikkim. It also sheds a new light on irregularities in the distribution range of this insect.

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Declaration of interest statement

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Ethical approval

The Animal ethical guidelines are followed in the study for species observation & identification.

Conflicts of interest:

The authors declare no conflict of interest.

Data and materials availability

All data associated with this study are present in the paper.

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